

WHAT IS CLAIMED IS:

1. A method of producing a photocatalyst having a carrier carrying titania and metal with a property of exhibiting thermal catalytic activity, 5 said method comprising:
  - a metal carrying step of causing said carrier carrying the titania to carry a compound of said metal;
  - a reduction step of hydrogen reducing, in a heating atmosphere at a first treatment temperature, said compound of the metal carried by 10 said carrier in said metal carrying step; and
  - an oxidation step of oxidizing, in a heating atmosphere at a second treatment temperature, said metal obtained by hydrogen reduction in said reduction step.
- 15 2. The method according to claim 1, wherein said second treatment temperature is equal to or less than said first treatment temperature.
3. The method according to claim 1, wherein said second treatment 20 temperature falls within a range of 300°C to 600°C.
4. The method according to claim 1, wherein said second treatment temperature falls within a range of 500°C to 600°C.
- 25 5. The method according to claim 1, further comprising a temperature adjusting step of setting a temperature of said carrier to said second treatment temperature in an inert gas atmosphere after said reduction step.

6. The method according to claim 1, wherein said metal is at least one of platinum, rhodium, ruthenium, and nickel.
- 5 7. The method according to claim 6, wherein the content of the platinum falls within a range of 0.04 weight% to 0.5 weight% relative to weight of the photocatalyst.
- 10 8. The method according to claim 1, wherein the content of the titania is 10 weight% or more relative to weight of the photocatalyst.
9. The method according to claim 1, wherein said carrier is a silica bead.
- 15 10. The method according to claim 1, further comprising, prior to said metal carrying step, a step of impregnating into said carrier a first treatment liquid containing titanium tetraisopropoxide and isopropyl alcohol;  
a step of hydrolyzing a titanium compound impregnated into said carrier to cause said carrier to carry titania; and  
a step of calcining said carrier carrying the titania.
- 20 11. A photocatalyst produced by the method according to claim 1.
- 25 12. A gas purifier for purifying gas containing a volatile organic compound, said gas purifier comprising:  
a reactor filled with the photocatalyst according to claim 11;

light irradiating means for irradiating light on the photocatalyst in said reactor; and

supply and exhaust means for feeding said gas to said photocatalyst,

5 wherein a temperature of said photocatalyst upon purifying said gas falls within a range of 100°C to 200°C.

13. The gas purifier according to claim 12, wherein said volatile organic compound is at least one of acetaldehyde, formaldehyde, paraffin  
10 hydrocarbons, olefin hydrocarbons, and aromatic compounds.